For unpermitted and permitted confinement feeding operations

Professional Engineer[1] (PE) Design Certification

This form is to be used in lieu of a Construction Design Statement (CDS) for confinement feeding operations with an AUC[2] of more than 500 AU, not required to have a PE[1], that are constructing a formed manure storage structure[3] with a site-specific design sealed by a PE[1]. For more information contact the DNR (see page 2 for contact information.)

Name of operation: ..... Facility ID No. : .....

Location: .....

(1/4 1/4) (1/4) (Section) (Tier & Range) (Name of Township) (County)

Describe the proposed confinement feeding operation structures: .....

.....

Design Certification: Pursuant to 567 IAC 65.15(14)"a" or "b", I prepared an engineering report, plans and specifications for the operation referenced above. Design considerations shall be in conformance with the following design methods:

American Concrete Institute (ACI):	Portland Cement Association (PCA):	MidWest Plan Service (MWPS):
☐ ACI 318	☐ EB 075	☐ MWPS 36
☐ ACI 360	☐ EB 001	☐ MWPS TR9
☐ ACI 350	☐ IS0 72	

In addition, for nondry manure the following additional requirements of 567 IAC 65.15(14)"a"(1) will be met:

☐ 1. The floors shall be a minimum of 5 inches thick. Nondestructive methods to verify the floor slab thickness may be required by the department. The results shall indicate that at least 95 percent of the floor slab area meets the minimum required thickness. In no case shall the floor slab thickness be less than 4½ inches.

☐ 2. Wire mesh shall not be used as primary reinforcement for a formed manure storage structure with a depth of 4 feet or more. Fiber shall not be used as reinforcement.

☐ 3. Waterstops shall be installed in all areas where fresh concrete meets hardened concrete. Waterstops shall be made of plastic, rolled bentonite or similar materials approved by the department.

☐ 4. The vertical steel of all walls shall be extended into the footing and be bent at 90° or a separate dowel shall be installed. As an alternate to the 90° bend, the dowel may be extended at least 12 inches into the footing, with a minimum concrete cover of 3 inches at the bottom. In lieu of dowels, mechanical means or alternate methods may be used as anchorage of interior walls to footings.

Karst Determination: Go to www.IowaDNR.com, select the link to 'Mapping (GIS Interactive)', then check the AFO Siting Atlas. If the site is in karst or potential karst, if you cannot access the map, or if you have questions about this issue, contact a DNR geologist at (515) 242-6848. Check one of the following:

☐ The site is not in karst or potential karst. If the site is not located in karst or potential karst, print and enclose the map with the name and location of the site clearly marked.

☐ The DNR has verified that the site is in karst. The upgraded concrete standards of 567 IAC 65.15(14)"c" are used:

567 IAC 65.15(14)"c". Karst terrain—upgraded standards. If the site of the proposed formed manure storage structure is located in an area that exhibits karst terrain or an area that drains into a known sinkhole, the minimum concrete standards set forth in 65.15(14)“a” or “b” shall apply. In addition, the following requirements apply to all formed manure storage structures that store nondry or dry manure:

☐ (1) A minimum 5-foot vertical separation distance between the bottom of a formed manure storage structure and limestone, dolomite, or other soluble rock is required if the formed manure storage structure is not designed by a PE or an NRCS engineer.

☐ (2) If the vertical separation distance between the bottom of the proposed formed manure storage structure and limestone, dolomite, or other soluble rock is less than 5 feet, the structure shall be designed and sealed by a PE or an NRCS engineer who certifies the structural integrity of the structure. A 2-foot-thick layer of compacted clay liner material shall be constructed underneath the floor of the formed manure storage structure. However, it is recommended that any formed manure storage structure be constructed aboveground if the vertical separation distance between the bottom of the structure and the limestone, dolomite, or other soluble rock is less than 5 feet.

☐ (3) In addition, in an area that exhibits karst terrain or an area that drains into a known sinkhole, a PE, an NRCS engineer or a qualified organization shall submit a soil exploration study based on the results from soil borings or test pits to determine the vertical separation between the bottom of the formed structure and limestone, dolomite, or other soluble rock. A minimum of two soil borings or two test pits, equally spaced within each formed structure, are required. After soil exploration is completed, each soil boring and pit shall be properly plugged with concrete grout, bentonite, or similar materials.

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[1] PE includes a professional engineer licensed in the state of Iowa or an NRCS Engineer.

[2] To determine the AUC see the "Manure Storage Indemnity Fee" (DNR Form 542-4021) or the 'Construction Permit Application' (DNR Form 542-1428) or contact the DNR (see page 2 for contact information)

[3] Formed manure storage structure = covered or uncovered concrete or steel tank, and concrete pit below the building

☐ (4) Groundwater monitoring shall be performed as specified by the department.
☐ (5) Backfilling shall not start until the floor slats have been placed or permanent bracing has been installed, and shall be performed with material free of vegetation, large rocks, or debris.

Alluvial Soils Determination: Go to www.IowaDNR.com, select the link to 'Mapping (GIS Interactive)', then check the AFO Siting Atlas. If the site is in potential alluvial soils, if you cannot access the map, or if you have questions about this issue, contact a DNR geologist at (515) 242-6848. Check one of the following:

☐ The site is not in alluvial soils. If the site is not in potential alluvial soils, print and enclose the map with the name and location of the site clearly marked.
☐ If the site is in alluvial soils, submit one of the following:
  ☐ Include correspondence from the DNR showing the site is not in 100-year floodplain or does not require a floodplain permit.
  ☐ Include a copy of the Floodplain Permit if a floodplain permit is required.

Groundwater separation requirements: (check one of the following boxes):

☐ A drain tile shall be installed along the footings to artificially lower the groundwater table, pursuant to 65.15(7)“b”.
☐ If applying for a construction permit, the drain tiles will have a device to allow shut off and monitoring, if the drain tiles do not have a surface outlet accessible in the property, as required in 65.15(1)"c".
☐ In lieu of the drain tile, a certification signed by a PE[2], a groundwater professional certified pursuant to 567 Chapter 134, a qualified staff from NRCS, or a qualified organization, is being submitted indicating that the groundwater elevation, measured according to 65.15(7)"c", is above the bottom of the formed structure.

Engineer's Certification: I hereby certify that I will prepare/have prepared a site-specific design for the formed manure storage structure[3](s) referenced above that complies with the minimum concrete standards of 567 IAC 65.15(14). A copy of the site-specific engineering report, plans and specifications will be available on site for DNR's inspection.
(*Include PE engineering seal, stamp, signature in contrasting color ink and date)*

Company:
Address:
Phone No.
Fax No.

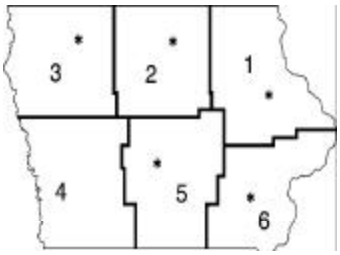
Contractor's Certification If the PE[1] will not be present on site observing critical points of construction, I hereby certify that I will construct the formed manure storage structure[3](s) referenced above according to the engineering design.

(Print Contractor's Name) (Contractor's Signature) (Date)

(Company) (Address) (Phone No.)

Mailing Instructions: Mail this 'PE Design Certification' according to the following:

1. Operations with an AUC[2] between 501 and 999 AU and constructing a formed manure storage structure[3], required to submit a manure management plan (MMP), prior to beginning construction must file this 'PE Design Certification', the karst and alluvial soils documentation requested in pages 1 and 2, the MMP and fees to the nearest DNR Field Office:



Field Office 1 909 West Main, Suite 4 Manchester, IA 52057 (563) 927-2640	Field Office 3 1900 N. Grand Avenue Spencer, IA 51301 (712) 262-4177	Field Office 5 401 SW 7th, Suite 1 Des Moines, IA 50309 (515) 725-0268
Field Office 2 2300 15th St SW Mason City, IA 50401 (641) 424-4073	Field Office 4 1401 Sunnyside Lane Atlantic, IA 50022 (712) 243-1934	Field Office 6 1023 W. Madison Washington, IA 52353 (319) 653-2135

2. If a construction permit is required (AUC[2] = 1,000 AU or more and constructing a formed manure storage structure[3]), mail this form as required in the construction permit application form (DNR Form 542-1428).

If you have any questions regarding the concrete standards requirements and this PE Design Certification, contact an engineer of the AFO- Program at (515) 281-8941, the nearest DNR Field Office, or visit www.IowaDNR.com.